FORESTRY Leaflets
North Carolina Division of Forest Resources

MANAGING THE LONGLEAF STANDS FOR PINE STRAW PRODUCTION

Real income potential is possible on many longleaf forests found in eastern and southeastern North Carolina. This Forestry Leaflet explains the typical manner in which longleaf pinestraw is harvested.

METHODS of HARVEST and REMOVAL

PLUNGER-TYPE , WIRE BALERS - The most popular image of pine straw harvesting is that of a crew with pitch forks loading a plunger-type baler in the woods. For many years this was the only method for gathering "straw". In natural stands or plantations of longleaf, needles were concentrated in piles with pitch forks and a tractor mounted plunger baler was driven to each pile and loaded by hand. Bales were fastened with wire lengths and piled for later transport on a flat bed farm truck. This method is labor intensive and time consuming because each bale had to be fastened by hand. While some small producers still utilize this method, most larger operators have parked their plunger balers in favor of small hay balers that fasten the needles with polvpropylene twine.

BOXING or HAND BALING - Boxing is perhaps the most primitive and labor intensive of all pinestraw production methods. Simply stated, boxing is the placement of pine needles in a small bale-sized crate with a hinged top. On the top of the "box", a large lever allows the operator to compress the pinestraw within the confines of the box. Repeating this process, a tight bale is produced. The bale is tied by hand with twine that was placed in the box prior to loading. The boxing approach replaces -he high cost of a mechanized baler with the cost of hand labor. Boxing has a specific niche in the pinestraw industry in dense woods or remote locations were conditions would preclude the use of a baler. Likewise, when abundant, inexpensive labor is available, or capital is limiting, boxing can indeed be competitive. (See Forestry Leaflet # 40-A Low Cost Box Baler

MECHANIZED HAY - BALERS - For increased efficiency, availability of parts, and servicing many producers use agricultural hay balers for in-woods harvesting and particularly at buying stations or concentration' yards. It didn't take producers long to realize that hay balers were not designed for the deep woods or the scrub oaks, limbs and cones that find their way in to the bales. Likewise, the large width of mechanized hay balers limited their use in all but the cleanest and widely spaced longleaf stands. The increased demand for pinestraw brought about the switch to a smaller, "european" sized hay balers that produce a 12” x 14” face on a bale versus the standard 14” x 16” chamber.

To facilitate mechanized baling of pine straw producers also needed a more efficient manner to rake needles into windrow. Adapting field hay rakes to woods conditions took some minor engineering, but many producers shortened and strengthened existing hay rakes for in-woods operation. In plantations, corridors or haul-rows are spaced evenly throughout the stand to facilitate baling on long and efficient windrows. In natural woods settings, windrows will, by necessity, be placed in any suitable area that will facilitate maneuvering of a hay baler.

HAULING LOOSE PINESTRAW TO "BUYING STATIONS"- The least capital intensive oil all harvesting methods entails only a pitchfork and a vehicle to transport the loose straw to a "buying station" or concentration yard. The raker is a primary producer, essentially a harvester and a transporter of the raw

material to a location where longleaf needles can be further processed. The buyer supplies the processing, storage and marketing branch of the enterprise. The raker assumes little risk in the marketing of the final product but will be forced toaccept the going price for the product at time of delivery. In exchange for his delivered pinestraw, the raker receives a check for services once a week or dailv as agreed. The raker assumes the responsibility of locating,securing, and paying the landowner for the pinestraw. Written contracts for pine straw removal are becoming more prevalent but many transactions are arranged on a verbal basis either as a per bale or lump-sum basis.

RAKING LONGLEAF STANDS

Pine straw harvesting is easily mechanized in existing longleaf plantations. The even spacing and generally closed canopy of longleaf plantations makes for high yields of clean, weed free pinestraw. Plantations on existing farmland or previously cleared land that lacks the natural vegetation that can hinder straw gathering. Likewise, plantations are often free from hardwood competition that is found in natural longleaf stands where fire has been excluded. Plantations can yield pinestraw as early as twelve years after planting but raking is common in ten year-old stands.

Access or haul roads are established by removing everv fourth or fifth row of trees within a plantation. To retain as many healthy, full crowned trees as possible, access roads are commonly placed in open spaces where trees are thin or where ice-damaged or diseased trees exist. Once corridors are established, all mechanized work can then be directed to row centers. Typically, a small horse-powered tractor pulls a modified hay rake between the trees into a central windrow. Hand raking, with pitch forks, allows for the collection of needles adjacent to tree trunks without unwanted injury.

Once a long windrow is complete, inspection and hand removal of large cones and sticks proceeds. After the windrow is cleaned and reshaped, a mechanized baler is propelled along the length of the windrow by a tractor. Finished bales are then collected and loaded on wagons or directly upon flatbed trucks or trailers. Variations on this procedure are the rule rather than the exception. Each stand will differ greatly according to terrain, age of trees, former land-use, distance to highway and other constraints. Often, pinestraw is raked to several large piles where a stationary baler processes the straw. This method is preferred when a truck or trailer can be moved directly to the baling area to minimize material handling. Convenience and proximity to hauling truck should ultimately determine your harvesting scheme.

RAKING NATURAL STANDS - Managing for pine straw production in natural stands requires a healthy dose of persistence and understanding of the ecology of longleaf. The longleaf tree has adapted wonderfully to the repeated wildfires that frequently burned through the Sandhills. Protection of the forests from wildfires has allowed the blackjack and turkey oaks to dominate many longleaf pine stands. The management of longleaf stands for pine straw production becomes a battle against hardwood competition.

Natural stands offer the landowner and pinestraw producer a tremendous payback potential for a small investment. The extent of payback is directly related to the ease of making the stand accessible and free from competition. There are several methods used to remove hardwood brush from longleaf stands and each has an associated cost in manpower, time and money:

Type of Control	How / When	Benefits	Drawbacks	Typical Cost
Mechanical	Anytime	♦ Quick ♦ Efficient ♦ Immediate pinestraw production ♦ OK in populated areas	♦ Can cause erosion ♦ Specialized equipment needs ♦ Debris disposal ♦ Can uproot native plants (grasses/herbs)	Potentially High (Depending on amount of competition
Prescribed Burning	Fall and Winter	♦ Natural ♦ Effective ♦ Promotes native plants ♦ Cost effective when competition is minor	♦ Smoke problems ♦ Not suggested near houses and farms ♦ Specialized skills required ♦ Liability concerns	Relatively Inexpensive
Chemical	Growing Season	♦ Protects soil ♦ Specifically targets competition species ♦ Hand-applied ♦ Effective	♦ Stigma against herbicides ♦ Equipment needs ♦ Availability of contractors	Low to Moderate

See your local forester for more information an which competition control combination would be best suited to your individual forest conditions.